

D-MANNOSE CONTRACTPTIVES

This application is a continuation of and claims priority from Co-pending U.S. Patent Application Serial No. 10/231,399, filed August 29, 2002.

FIELD OF THE INVENTION

[1] The present invention relates to the use of D-Mannose to inhibit or prevent the uniting of a sperm and egg in conception. The presence of excess mannose in a reproductive system inhibits sperm capacitation.

BACKGROUND OF THE INVENTION

[2] The search for effective contraceptives that are both inexpensive and without undesired side effects has been a long-standing activity. It has been noted that there is a D-Mannose binding constituent of human sperm surfaces. It has also been shown that D-Mannose is very useful in alleviation of the urinary tract, infection and cystitis. The present invention concerns the use of D-Mannose administration to a woman as a method of inhibiting conception.

DESCRIPTION OF PREFERRED EMBODIMENT

[3] D-Mannose has been widely used in the feed industry to treat and prevent urinary tract infections by inhibiting the adherence of bacteria to membranes or cell walls. Interactions between proteins and D-Mannose in the acrosome of mice, rats, horses, chickens, humans, and other animals appear to be related to adherence of the sperm to the egg. Various studies have been performed, some indicating that D-Mannose causes greater adherence of sperm acrosome to eggs and others that it causes less adherence. In any case, the present invention involves the inhibition of conception while also preventing or alleviating urinary tract infections or cystitis.

[4] It is understood that a certain amount of silica is well known to those skilled in the art to prevent D-Mannose from compacting upon exposure to moisture. Thus, silica is useful to mix with D-Mannose powder prior to encapsulation.

[5] It has been noticed that equine artificial insemination often results in endometriosis, which is a painful infection of the uterus. To protect against

infection, the equine sperm was placed in a mannose solution. While infection was avoided, it was also observed that conception did not occur in the treated animals. D-Mannose in sufficient quantities at the appropriate times appears to prevent conception (at least sometimes) by inhibiting the sperm from adhering or attaching to the egg via acrosome of the sperm. In one preferred embodiment the present invention involves oral administration, preferably in capsule form, of D-Mannose to a female with the possibility of sexual intercourse in the near future. One preferable dosage for an average adult female human would involve the ingestion of about three (3) capsules, each containing about 420 milligrams of D-Mannose about every two (2) hours beginning about a day before intercourse. This may be reduced to about 2-3 of such capsules about one hour before intercourse and about the same dosage about one hour after. The oral spray of a D-Mannose solution may also be used. Such dosages and timing may vary to a significant extent to be most effective. The useful dose for an average adult female human would range from about 1 gram to about 10 grams of D-Mannose per day. Useful doses for other animals can be determined by scaling the relative to the other animal's weight relative to average adult female humans. The administration of D-Mannose to domestic or wild animals may be done to inhibit animal population growth. Such administration may be in water, salt or foods.

[6] The inventor envisions soft drinks or alcohol-containing beverages supplemented with D-Mannose and useful to lessen the possibility of conception.

[7] While capsules are preferred at the present time, it is conceivable that D-Mannose may be utilized simply as a powder addition to drinks or foods. The dosages could be supplemented or replaced by a mannose-containing contraceptive jelly, douche or intravaginal cream, or the like. What is important is for the subject woman to gain an internal concentration of mannose efficient to inhibit the fertilizing interaction of sperm with the egg.

[8] While the exact mechanism of this contraceptive effect is incompletely defined, it is not essential to the understanding or use of the present invention. The present invention, involves the successful inhibition of sperm-egg interaction to prevent or reduce the likelihood of conception by the presence of a sufficient quantity of D-Mannose. It is believed that D-Mannose binds to sites on the sperm which are used by the sperm in its interaction with the egg in a way in which common table sugar, sucrose, and most other commonly used sugars do not. While D-Mannose is most preferably used in capsules, tablets or powders may also be used. Douches containing D-Mannose may be used alone or in combination with oral D-Mannose to inhibit effective sperm egg interaction. D-

Mannose may be supplied vaginally with a diaphragm, or a condom that contains D-mannose. It may be supplied taken with separate hormonal pills or in pills, which are combined with hormonal pills. D-Mannose douches or intervaginal creams are effective means of delivering the D-Mannose particularly if used within one day before or soon after intercourse. The closer in time to the intercourse the vaginal applications are made, the more effective the application. Women of child-bearing/age not desiring to become pregnant should take a constant maintenance dose of D-Mannose.

[9] Because the D-mannose binds to sperm in a manner, which, at some concentration, makes the sperm less efficient in penetrating the egg, there is a synergistic interaction with other contraceptive applications, which also prevent conception by preventing sperm from penetrating the egg.

[10] Although the invention has been described with reference to specific embodiments, this description is not meant to be construed in a limited sense. Various modifications of the disclosed embodiments, as well as alternative embodiments of the inventions will become apparent to persons skilled in the art upon the reference to the description of the invention. It is, therefore, contemplated that the appended claims will cover such modifications that fall within the scope of the invention.